PAT-NO: JP362131050A
DOCUMENT-IDENTIFIER: JP 62131050 A

TITLE: COLORED PARTICULATE RESIN FOR VINYL CHLORIDE RESIN

PUBN-DATE: June 13, 1987

INVENTOR-INFORMATION:

NAME	COUNTRY
TACHIHARA, ISAO	
NAKANISHI, KATSUNORI	

ASSIGNEE-INFORMATION:

NAME	COUNTRY
DAINICHI COLOR & CHEM MFG CO LTD	N/A

APPL-NO: JP60269488
APPL-DATE: December 2, 1985

INT-CL (IPC): C08L027/06

US-CL-CURRENT: 524/567

ABSTRACT:

PURPOSE: To provide the titled particulate resin which is free from bleeding or blotting of color, hardly causes thickening, has excellent flow characteristics and workability and is useful as a color aggregate which enables easy patterning, by providing a synthetic resin film on the surface of a particulate resin colored by a pigment, a dye, an ink, etc.

CONSTITUTION: A particulate resin having a particle size of 100～1,000μ such as PVC, a vinyl chloride/ethylene/vinyl acetate copolymer, etc. is introduced into a mixer and the surface of said resin is wetted with a plasticizer or an org. solvent. A pigment, a dye or an ink is then added thereto and the mixture is mixed at 15～30°C for 1～15min to obtain a colored particulate resin. A synthetic resin emulsion such as an acrylic resin emulsion, etc. is added to the particulate resin and the mixture is mixed at 70～160°C for 2～20min to obtain a colored particulate resin coated with a synthetic resin film.

DERWENT-ACC-NO: 1987-202692

DERWENT-WEEK: 198729

TITLE: Resin particles colouring for vinyl! chloride polymer - making coloured particles using pigments, applying synthetic polymer emulsion coating materials, and heating

PATENT-ASSIGNEE: DAINICHISEIKA COLOR & CHEM MFG[DAIC]

PRIORITY-DATA: 1985JP-0269488 (December 2, 1985)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 62131050 A	June 13, 1987	N/A	004	N/A

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO	APPL-DATE
JP 62131050A	N/A	1985JP-0269488	December 2, 1985

INT-CL (IPC): C08L027/06

ABSTRACTED-PUB-NO: JP 62131050A

BASIC-ABSTRACT:

Colouring resin particles for vinyl chloride polymer involves the prepn.; making coloured resin particles using pigments, ink or other colouring agents, applying synthetic polymer emulsion coating materials, on the coloured particles, heating the coated coloured particles, and, making coloured particles with strong protective coat layer.

USE/ADVANTAGE - Coloured resin particles are used for the filler of vinyl chloride as a pigment of the matrixresin. It has strong colouring property, high chemical stability, easy handling property, high fluidity, etc. Raw material resins are PVC, vinyl chloride-ethylene-vinyl acetate copolymer, etc. Synthetic polymer emulsion coating materials are e.g. acrylic acid type polymer- or styrne-acrylic acid copolymer-emulsion etc. Resin particle size is 100-1000 micron (dia.).

CHOSEN-DRAWING: Dwg.0/0

DERWENT-CLASS: A14 A31

CPI-CODES: A04-E02B; A04-E03B; A08-E01; A08-R08; A11-A01B;

⑲日本国特許庁(JP)　⑪特許出願公開

⑫公開特許公報(A)　昭62－131050

⑤1Int.Cl.⁴	識別記号	庁内整理番号	④3公開　昭和62年(1987)6月13日
C 08 L 27/06	LFT	7602－4J	

審査請求　未請求　発明の数 1　(全4頁)

⑤4発明の名称　塩化ビニル樹脂用着色粒状樹脂

⑵1特　願　昭60－269488

⑵2出　願　昭60(1985)12月2日

⑦2発明者　立原　勲　奈良市西登美ケ丘2丁目4150番地5号　中登美団地F6－208

⑦2発明者　中西　勝則　奈良市学園朝日元町2－529－3

⑦1出願人　大日精化工業株式会社　東京都中央区日本橋馬喰町1丁目7番6号

⑦4代理人　弁理士　吉田　勝廣

明　細　書

1. 発明の名称

塩化ビニル樹脂用着色粒状樹脂

2. 特許請求の範囲

(1) 顔料、着色剤及びインキ等によって着色された粒状樹脂表面に合成樹脂エマルジョンを塗工し、しかる後加温処理を施して着色された粒状樹脂表面に合成樹脂皮膜を設けたことを特徴とする塩化ビニル樹脂用着色粒状樹脂。

(2) 粒状樹脂が粒度 100μ～1000μの塩化ビニル樹脂、塩化ビニル－エチレン酢酸ビニル共重合体である特許請求の範囲第1項記載の塩化ビニル樹脂用着色粒状樹脂。

(3) 合成樹脂エマルジョンがアクリル酸樹脂エマルジョンである特許請求の範囲第1項記載の塩化ビニル樹脂用着色粒状樹脂。

3. 発明の詳細な説明

(産業上の利用分野)

本発明は、塩化ビニルペーストゾル等を用いたマーブル調の床材や壁装材などのカラー骨材として有効な着色粒状樹脂に関するものである。

(従来技術)

従来、マーブル調の床材や壁装材等を製造する場合、塩化ビニルペーストゾル等の原料に骨材としてゴム、塩化ビニル樹脂、木粉、アクリル樹脂等の粉粒物を混合している。

これらの骨材は予め着色されたものを粉砕したものと、粉粒化した後に着色したものがある。

(発明が解決すべき問題点)

前記した着色骨材を例えば塩化ビニルペーストゾル中に配合して、プロペラミキサー等で撹拌混合すると、ペーストゾル中の可塑剤や溶剤等に顔料や着色剤が溶出して色落ち、にじみが生じ、更には、骨材が破損したり、ゾルの粘度を上昇せしめる等の欠陥があった。

本発明者等は前記の色落ち等の欠陥を解消すべく種々研究を進めた結果、塩化ビニル樹脂等の

合成樹脂粒状物を粉末顔料等で着色加工した着色樹脂粒状物を更にアクリル樹脂エマルジョンでコーティングして得た着色樹脂粒状物を塩化ビニルペーストゾル等に配合して床材に加工した結果、顔料の溶出やにじみが殆どなく、また増粘性が低く、流動性良好で作業性よく柄出し容易なカラー骨材が得られることを知見して本発明に到達した。

（問題点を解決するための手段）

すなわち、本発明は、

顔料、着色剤及びインキ等によって着色された粒状樹脂表面に合成樹脂エマルジョンを塗工し、しかる後加温処理を施して着色された粒状樹脂表面に合成樹脂皮膜を設けたことを特徴とする塩化ビニル樹脂用着色粒状樹脂である。

本発明を詳細に説明すると、本発明で使用する粒状樹脂とは、その粒度が 100μ～1000μ好ましくは 250μ～ 500μの塩化ビニル樹脂、塩化ビニル－エチレン－酢酸ビニル共重合体、スチレン樹脂、アクリル－スチレン樹脂、ポリカーボネート樹脂、ポリエチレン樹脂、ポリプロピレン樹脂等の粒状樹脂又は粉砕樹脂である。

前記粒状樹脂を着色する顔料及び着色剤とは、アゾ系顔料、アントラキノン系顔料、イソインドリノン系顔料、キナクリドン系顔料、銅フタロシアニン系顔料、二酸化チタン、ベンガラ、等の顔料単体或は前記顔料に金属石けん等を配合して得た粉末着色剤（ドライカラー）顔料をビヒクル、溶媒中に分散せしめた塗料、インキ等が挙げられる。

本発明において、着色粒状樹脂を得るのには、まず、粒状樹脂を混合機例えば、双腕型ニーダー（森山製作所製品）、バタフライミキサー（井上製作所製品）、ヘンシェルミキサー（三井三池製作所製品）ゲートミキサー（井上製作所）等に投入し、前記粒状樹脂の表面をＤＯＰ等の可塑剤或はメタノール等の有機溶媒で濡らし、更にこれに粉末顔料又はその他の着色剤を添加し１５～３０℃で１～１５分間混合して着色された粒状樹脂を得る。次いでこの着色された粒状樹脂を混合機に入れたまま合成樹脂エマルジョンを配合し、混合機内を７０℃～１６０℃に加熱して２～２０分間混合を行なうことによって、塩化ビニル樹脂用着色粒状樹脂を得る。

以下、実施例により本発明を具体的に説明する。

実施例1.

粒状塩化ビニル樹脂（商品名；ゼオン103EP：日本ゼオン社製品　粒度100 μ）１００重量部と可塑剤ＤＯＰ　５重量部をヘンシェルミキサーに投入し、常温で3分間撹拌混合を行なう。更にこの混合物にペースト状着色剤（商品名；ビニルトーナーVT6155レッド：大日精化工業社製品）５重量部を添加し、８０℃で5分間撹拌混合を行なって着色された粒状塩化ビニル樹脂を得る。次いでこの着色された粒状塩化ビニル樹脂にアクリル系合成樹脂エマルジョン（商品名；モビニール７４２：ヘキスト合成社製品）１０重量部を加え、ヘンシェルミキサーで均一に混合した後、更に８０℃で5分間混合を行なうことによって赤色に着色された着色粒状樹脂を得た。得られた着色粒状樹脂の耐色落性、増粘状態を検査した結果を第１表に示す。

比較例1.

実施例１のアクリル系合成樹脂エマルジョンを添加処理する工程を除いた他は実施例１と同様にして赤色に着色された着色粒状樹脂を得た。

実施例2.

粒状塩化ビニル樹脂（商品名；ゼオン103PP：日本ゼオン社製品　粒度100 μ）１００重量部と可塑剤ＤＯＰ　５重量部をヘンシェルミキサーに投入し、常温で3分間撹拌混合を行なう。更にこの混合物にペースト状着色剤（商品名；ビニルトーナーVT6640ブルー：大日精化工業社製品）５重量部を添加し、８０℃で5分間撹拌混合を行なって着色された粒状塩化ビニル樹脂を得る。次いでこの着色された粒状塩化ビニル樹脂にスチレン－アクリル系合成樹脂エマルジョン（商品名；リカボンドCS-20：中央理化工業社製品）１０重量部を加えヘンシェルミキサーで均一に混合した後、更に８０℃で5分間混合を行なうことによって青

色に着色された着色粒状樹脂を得た。得られた着色粒状樹脂の耐色落性、増粘状態を検査した結果を第1表に示す。

比較例2.

実施例2のスチレン－アクリル系合成樹脂エマルジョンを添加処理する工程を除いた他は実施例2と同様にして青色に着色された着色粒状樹脂を得た。

実施例3.

粒状塩化ビニル－エチレン酢酸ビニル共重合体樹脂（商品名；グラフトマーゼオンR-5 ：日本ゼオン社製品　粒度 350μ）１００重量部とメタノール5重量部をバタフライミキサーに投入し、常温で2分間撹拌混合を行なう。更にこの混合物に水性着色剤（商品名：ニューラクチミンカラーブルー FL8：大日精化工業社製品）5重量部を添加し、８０℃で5分間撹拌混合を行なって着色された粒状塩化ビニル樹脂を得る。次いでこの着色された粒状塩化ビニル樹脂にスチレン－アクリル系合成樹脂エマルジョン（商品名；プライマールAC61：日本アクリル工業社製品）１０重量部を加えバタフライミキサーで均一に混合した後、更に８０℃で5分間混合を行なうことによって青色に着色された着色粒状樹脂を得た。得られた着色粒状樹脂の耐色落性、増粘状態を検査した結果を第1表に示す。

比較例3.

実施例3のスチレン－アクリル系合成樹脂エマルジョンを添加処理する工程を除いた他は実施例3と同様にして青色に着色された着色粒状樹脂を得た。

実施例4.

粒状塩化ビニル－エチレン酢酸ビニル共重合体樹脂（商品名；グラフトマーゼオンR-5 ：日本ゼオン社製品　粒度 350μ）１００重量部とメタノール5重量部をバタフライミキサーに投入し、常温で2分間撹拌混合を行なう。更にこの混合物に粉末状着色剤（商品名；　PMP 1640　ブルー：大日精化工業社製品）5重量部を添加し、６０℃で5分間撹拌混合を行なって着色された粒状塩化ビ

第　1　表

		実施例1	比較例1	実施例2	比較例2	実施例3	比較例3	実施例4	比較例4
耐色落性	直　後	5	3	5	2	5	2	5	2
	12時間放置後	5	1	5	1	4	1	4	1
増粘性 CPS	直　後	3000	3000	3000	3000	3000	3000	3000	3000
	12時間放置後	4000	6000	4000	7000	4000	7000	4000	8000

耐色落性　5 …… 色落なし

4 …… わずかに色落が認められる。

3 …… 色落が認められる。

2 …… 色落がかなり認められる。

1 …… 完全落色

ニル樹脂を得る。次いでこの着色された粒状塩化ビニル樹脂にスチレン－アクリル系合成樹脂エマルジョン（商品名：リカボンドES-20：中央理化工業社製品）１０重量部を加えバタフライミキサーで均一に混合した後、更に８０℃で５分間混合を行なうことによって青色に着色された着色粒状樹脂を得た。得られた着色粒状樹脂の耐色落性、増粘状態を検査した結果を第１表に示す。

比較例4.

実施例４のスチレン－アクリル系合成樹脂エマルジョンを添加処理する工程を除いた他は実施例４と同様にして青色に着色された着色粒状樹脂を得た。

〔耐色落性及び増粘性テスト方法〕

塩化ビニルペーストゾル中に本発明に着色粒状樹脂を配合した場合の色落性を判定。

（ペーストゾル配合）

塩化ビニル樹脂	１００重量部
可塑剤　ＤＯＰ	５０重量部
安定剤(Ba-Zn系)	３重量部

前記のペーストゾル１００重量部に対して、実施例、比較例で得られた着色粒状樹脂を各々１０重量部添加して混合機（商品名：スリーワンモーター：新東科学社製品）で７００rpm １分間混合し、混合直後と１２時間放置後の色落及び粘度を測定する。

色落性は、着色したペーストゾルを濾紙の上にのせて濾紙への色のにじみ出し状態を判定。

粘度はＢ型粘度計を使用し、ローターNo.4.回転数６０rpm で測定する。

〔作用効果〕

本発明の塩化ビニル樹脂用着色粒状樹脂は、特に合成樹脂エマルジョンで処理加工を施してあるため、塩化ビニルペーストゾル中に配合してもペーストゾル中の可塑剤や溶剤によって着色剤が溶出して色落ち、にじみ等が生じない。またペーストゾルの粘度を上昇せしめることがなく流動性良好で作業性がよく柄出し容易であるため、塩化ビニル製床材等のカラー骨材として有効である。

特許出願人　大日精化工業株式会社
代理人　弁理士　吉田勝広

PTO 04-1432

Japanese Kokai Patent Application
No. Sho 62[1987]-131050

COLORED PARTICULATE RESIN FOR VINYL CHLORIDE RESINS

Isao Tachibara and Katsunori Nakanishi

UNITED STATES PATENT AND TRADEMARK OFFICE
WASHINGTON, D.C. JANUARY, 2004
TRANSLATED BY THE RALPH MCELROY TRANSLATION COMPANY

JAPANESE PATENT OFFICE
PATENT JOURNAL (A)
KOKAI PATENT APPLICATION NO. SHO 62[1987]-131050

Int. Cl.[4]:	C 08 L 27/06
Sequence No. for Office Use:	7602-4J
Filing No.:	Sho 60[1985]-269488
Filing Date:	December 2, 1985
Publication Date:	June 13, 1987
No. of Inventions:	1 (Total of 4 pages)
Examination Request:	Not filed

COLORED PARTICULATE RESIN FOR VINYL CHLORIDE RESINS

[Enka-binru jushiyo chakushoku ryujo jushi]

Inventors:	Isao Tachihara Katsunori Nakanishi
Applicant:	Dainichiseika Color & Chemical Mfg.

[There are no amendments to this patent.]

Claims

1. A colored particulate resin for vinyl chloride resins, characterized in that the surface of a particulate resin that has been colored with a pigment, dye, ink, etc., is coated with a synthetic resin emulsion, whereupon heating is carried out in order to establish a synthetic resin coating on the colored particulate resin surface.

2. The colored particulate resin for polyvinyl chloride resins according to Claim 1, wherein the particulate resin is vinyl chloride resin or vinyl chloride-ethylene-vinyl acetate copolymer having a particle size of 100-1000 μm.

3. The colored particulate resin for vinyl chloride resins according to Claim 1, wherein the synthetic resin emulsion is an acrylic acid resin emulsion.

Detailed explanation of the invention

Industrial application field

The present invention concerns a colored particulate resin that is useful in colored aggregates such as marbleized flooring or wall coverings produced using materials such as vinyl chloride paste sol.

Prior art

In manufacturing marbleized flooring or wall covering in the past, rubbers, vinyl chloride resins, wood flour, acrylic resin and other particulate materials have been admixed as aggregate in a raw material such as vinyl chloride paste sol.

These aggregates include materials produced by milling colored materials, and materials that are colored after particle formation.

Problems to be solved by the invention

When the aforementioned colored aggregate is blended, for example, in vinyl chloride paste sol, and the materials are mixed by stirring in a propeller mixer or other such device, the pigment or colorant is eluted in the plasticizer or solvent contained in the paste sol. As a result, coloration is lost and bleeding occurs. In addition, such methods have the disadvantage that the aggregate breaks down, thereby increasing the viscosity of the sol.

The inventors of the present invention carried out multiple investigations with the objective of resolving the aforementioned disadvantages such as color loss. The inventors thus arrived at the present invention based on the discovery that a colored aggregate that produces almost no pigment elution or bleeding, reduces thickening, has good fluidity and processability, and readily manifests a pattern, is obtained when vinyl chloride resin or another synthetic resin particulate that has been colored with a material such as powdered pigment is coated with an acrylic resin emulsion, and the resulting colored resin particulate is then blended with vinyl chloride paste sol or other such material, followed by processing to produce a flooring material.

Means to solve the problems

Specifically, the present invention is a colored particulate resin for vinyl chloride resins, characterized in that the surface of a particulate resin that has been colored with a pigment, dye, ink, etc., is coated with a synthetic resin emulsion, whereupon heating is carried out in order to establish a synthetic resin coating on the colored particulate resin surface.

The present invention is described in additional detail below. The particulate resin used in the present invention is a vinyl chloride resin, vinyl chloride-ethylene-vinyl acetate copolymer, styrene resin, styrene acrylate resin, polycarbonate resin, polyethylene resin, polypropylene resin or another particulate or powdered resin, which has a particle size of 100-1000 μm, with 250-500 μm being preferred. Examples of pigment or colorant used in order to color the aforementioned particulate resin that may be cited include azo-based pigments, anthraquinone-based pigments, isoindolinone-based pigments, quinacridone-based pigments, iron phthalocyanine-based pigments, titanium dioxide, red iron oxide and other individual pigments, or powdered colorants (dry colors) produced by blending the aforementioned pigments with metal soaps or other such substances, and paints and inks produced by dispersing pigments in vehicles or solvents.

In order to obtain the colored particulate resin pertaining to the present invention, the particulate resin is first introduced into a mixing device such as a double-arm kneader (Moriyama Manufacturing Co., Ltd.), butterfly mixer (Inoue Mfg., Inc.), Henschel mixer (Mitsui Miike Machinery) or gate mixer (Inoue Mfg., Inc.), and the surfaces of the aforementioned particulate resin are wetted with a plasticizer such as DOP or an organic solvent such as methanol, followed by addition of the powdered pigment or other colorant. The materials are then mixed for 1-15 min at 15-30°C to obtain the colored particulate resin. Subsequently, a synthetic resin emulsion is mixed with the colored particulate resin already present in the mixer, and the interior of the mixer is heated to 70-160°C, while mixing for 2-20 min, thus producing a vinyl chloride resin colored particulate resin.

The present invention is described in detail below using application examples.

Application Example 1

100 parts by weight of particulate vinyl chloride resin (product name Zeon 103EP, particle size 100 μm, manufactured by Nippon Zeon) and 5 parts by weight of DOP plasticizer were introduced into a Henschel mixer, and were mixed by stirring for 3 min at normal temperature. 5 parts by weight of a paste-form colorant (product name Vinyl Toner VT6155

Red; manufactured by Dainichiseika Color and Chemical Mfg.) were then added to this mixture, and the materials were mixed by stirring for 5 min at 80°C to obtain a colored particulate vinyl chloride resin. Next, 10 parts by weight of acrylic synthetic resin emulsion (product name Movinyl 742, manufactured by Hekisuto Gosei [transliteration]) were added to this colored particulate vinyl chloride resin, and after stirring until uniform with the Henschel mixer, mixing was carried out for 5 min at 80°C, thereby producing a colored particulate resin that was colored red. The color loss resistance and thickening of the resulting colored particulate resin were investigated, and the results are presented in Table 1.

Comparative Example 1

A colored particulate resin that was colored red was obtained in the same manner as in Application Example 1, with the exception that the process wherein the acrylic synthetic resin emulsion of Application Example 1 was added was omitted.

Application Example 2

100 parts by weight of particulate vinyl chloride resin (product name Zeon 103FP, particle size 100 μm, manufactured Nippon Zeon) and 5 parts by weight of DOP plasticizer were introduced into a Henschel mixer, and the materials were mixed by stirring for 3 min at normal temperature. In addition, 5 parts by weight of paste-form colorant (product name Vinyl Toner VT6640 Blue, manufactured by Dainichiseika Color and Chemical Mfg.) were added to this mixture, and the materials were mixed by stirring for 5 min at 80°C to obtain a colored particulate vinyl chloride resin. Next, 10 parts by weight of a styrene-acrylic synthetic resin emulsion (product name Rikabond ES-20, manufactured by Chuo Rika Kogyo) were added to this colored particulate vinyl chloride resin, and after mixing until uniform using a Henschel mixer, additional mixing was carried out for 5 min at 80°C to obtain a colored particulate resin that was colored blue. The resistance to color loss and thickening of the resulting colored particulate resin were investigated, and the results are presented in Table 1.

Comparative Example 2

A colored particulate resin that was colored blue was obtained in the same manner as in Application Example 2, with the exception that the process wherein the styrene-acrylic synthetic resin emulsion of Application Example 2 was added was omitted.

Application Example 3

100 parts by weight of particulate vinyl chloride-ethylene-vinyl acetate copolymer resin (product name Graftomer Zeon R-5, particle size 350 μm, manufactured by Nippon Zeon) and 5 parts by weight of methanol were introduced into a butterfly mixer, and the materials were mixed by stirring for 2 min at normal temperature. 5 parts by weight of aqueous colorant (product name New Lactimine Color Blue FLB, manufactured by Dainichiseika Color and Chemical Mfg.) were added to this mixture, and the materials were mixed by stirring for 5 min at 80°C to obtain a colored particulate vinyl chloride resin. Next, 10 parts by weight of styrene-acrylic synthetic resin emulsion (product name Primal AC61, manufactured by Nippon Akuriru Kogyo [transliteration]) were added to the resulting colored particulate vinyl chloride resin, and after mixing until uniform with the butterfly mixer, additional stirring was carried out for 5 min at 80°C to obtain a colored particulate resin that was colored blue. The color loss resistance and thickening of the resulting colored particulate resin were investigated, and the results are presented in Table 1.

Comparative Example 3

A colored particulate resin that was colored blue was obtained in the same manner as in Application Example 3, with the exception that the process wherein the styrene-acrylic synthetic resin emulsion of Application Example 3 was added was omitted.

Application Example 4

100 parts by weight of particulate vinyl chloride-ethylene-vinyl acetate copolymer resin (product name Graftomer Zeon R-5, particle size 350 μm, manufactured by Nippon Zeon) and 5 parts by weight of methanol were introduced into a butterfly mixer, and the materials were mixed by stirring for 2 min at normal temperature. In addition, 5 parts by weight of powdered colorant (product name PMP 1640 Blue, manufactured by Dainichiseika Color and Chemical Mfg.) were added to this mixture, and the materials were mixed by stirring for 5 min at 60°C to obtain a colored particulate vinyl chloride resin. Next, 10 parts by weight of styrene-acrylic synthetic resin emulsion (product name Rikabond ES-20, manufactured by Chuo Rika Kogyo) were added to the resulting colored particulate vinyl chloride resin, and after mixing until uniform with the butterfly mixer, additional stirring was carried out for 5 min at 80°C to obtain a colored particulate resin that was colored blue. The color loss resistance and thickening of the resulting colored particulate resin were investigated, and the results are presented in Table 1.

Table 1

		実施例1	比較例1	実施例2	比較例2	実施例3	比較例3	実施例4	比較例4
耐色落性	直後	5	3	5	2	5	2	5	2
	12時間放置後	5	1	5	1	4	1	4	1
増粘性 CPS	直後	3000	3000	3000	3000	3000	3000	3000	3000
	12時間放置後	4000	6000	4000	7000	4000	7000	4000	8000

⑥ 耐色落性

5 …… 色落なし
4 …… わずかに色落が認められる。
3 …… 色落が認められる。
2 …… 色落がかなり認められる。
1 …… 完全落色

Key:
1 Application Example __
2 Comparative Example __
3 Color loss resistance
4 Immediately
After leaving for 12 h
5 Thickening Cps
6 Color loss resistance
5 No color loss
4 Slight color loss
3 Moderate color loss
2 Significant color loss
1 Complete color loss

Comparative Example 4

A colored particulate resin that was colored blue was obtained in the same manner as in Application Example 4, with the exception that the process wherein the styrene-acrylic synthetic resin emulsion of Application Example 4 was added was omitted.

Color loss resistance and thickening test methods

Color loss was determined by mixing the colored particulate resin of the present invention in vinyl chloride paste sol.

(Paste sol blend)

Vinyl chloride resin	100 parts by weight
DOP plasticizer	50 parts by weight
Stabilizer (Ba-Zn system)	3 parts by weight

The colored particulate resins obtained in the application examples and comparative examples were added in amounts of 10 parts by weight to 100 parts by weight of the aforementioned paste sol, and mixing was carried out for 1 min at 700 rpm using a mixer (product name: Three-One motor, manufactured by Shinto Kagaku [transliteration]). The color loss and viscosity were measured immediately after mixing and after leaving for 12 h.

Color loss was determined by evaluating bleeding of color onto filter paper when the colored paste sol was placed on the filter paper.

The viscosity was measured using a B-type viscometer with a No. 4 rotor at a rate of 60 rpm.

Effect of the invention

The colored particulate resin for vinyl chloride resins of the present invention is produced by treating with a synthetic resin emulsion. Consequently, even when blended in vinyl chloride paste sol, the colorant will not elute into the plasticizer or solvent contained in the paste sol, so that color loss, bleeding and other problems will not occur. Moreover, there is no increase in paste sol viscosity, so that the material has good fluidity and favorable processing properties, allowing it to readily manifest patterns. Consequently, the material is effective as a colored aggregate for materials such as vinyl chloride flooring.